



02.8. TRAJECTORIES OF NEUROCOGNITIVE FUNCTIONING OVER TIME IN YOUTH AT CLINICAL HIGH RISK WHO DO AND DO NOT TRANSITION TO PSYCHOSIS

Citation

Woodberry, K., W. S. Stone, D. I. Shapiro, C. M. Chokran, J. Addington, C. Bearden, K. Cadenhead, et al. 2018. "02.8. TRAJECTORIES OF NEUROCOGNITIVE FUNCTIONING OVER TIME IN YOUTH AT CLINICAL HIGH RISK WHO DO AND DO NOT TRANSITION TO PSYCHOSIS." Schizophrenia Bulletin 44 (Suppl 1): S78. doi:10.1093/schbul/sby015.198. <http://dx.doi.org/10.1093/schbul/sby015.198>.

Published Version

doi:10.1093/schbul/sby015.198

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other people's emotions, intentions, and actions in SZ, thereby improving embodiment of emotions.

We recruited twenty-six individuals with schizophrenia (SZ) and 26 demographically matched controls (CO). At baseline, we assessed social functioning, cognitive functions, symptom and embodied emotions. An online body mapping task (Nummenmaa et al., 2014) was used to generate spatial maps of bodily sensations experienced during 14 emotions categories. Then, SZ participated in the 5-week, novel VR social skills intervention that targeted social attention and simulation. Naturalistic scenarios, in which subjects moved through variable sequences of steps to attain the goal of a "mission" (e.g. find out the birthday of the avatar etc.). Subject interacted with an avatar and practiced perspective-taking and pragmatics to advance to the next level of difficulty.

Results: At baseline, bodily sensation maps show overall reduced embodiment of emotions in SZ as compared to CO. Statistical pattern recognition with Linear Discriminant Analysis (LDA) revealed less unique bodily sensations of emotions in SZ. Similarity scores between the maps of CO and SZ revealed a specific deficit in embodiment of low-arousal emotions (i.e. depression, sadness, shame) in SZ. After five weeks of VR training, negative symptoms and emotional embodiment improved in SZ. Specifically, embodiment of low-arousal emotions increased. Moreover, changes in the body maps of emotion indicated increased concordance among SZ.

Discussion: Anomalous embodiment of emotions plays an important role in the poor social outcome of individuals with schizophrenia, but a 5-week VR training of social attention, simulation, perspective taking, and communication skills was effective in improving emotional embodiment. Further research is warranted to elucidate underlying social cognitive mechanisms that link self-disturbances and embodiment of emotions.

O2.7. CAN THEY HEAR IT? DO PATIENTS WITH AUDITORY VERBAL HALLUCINATIONS HAVE AUDITORY PROCESSING DEFICITS?

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Background: It has been well established for over half a century that patients with a diagnosis of schizophrenia have auditory processing deficits. More recently, there has been a small body of work that has suggested patients with a history of auditory hallucinations have particularly pertinent auditory processing deficits, with the importance of pitch perception being noted in a single study. This current body of work has systematically investigated whether auditory perception, using a tone detection task, are related to auditory verbal hallucinations (AVH).

Methods: Four studies will be presented each of which used a tone detection task that manipulated pitch, with the study 1 also have a tone duration manipulation.

Results: Study 1 compared 15 AVH with 15 non-AVH patients with schizophrenia with 34 healthy controls, AVH patients demonstrated the greatest impairments on pitch and tone duration deficits compared to the other two groups. Study 2 compared 99 patients with schizophrenia (65 with a history of AVH and 34 without) with 95 healthy controls and confirmed pitch deficits in schizophrenia, specifically those with AVH. Study 3 established in 100 healthy controls that unusual experiences or auditory hallucination proneness were significantly correlated to pitch perception performance. Lastly, study 4 demonstrated that relatives of patients with schizophrenia also showed a significant correlation between usual experiences and pitch perception.

Discussion: This research indicates auditory processing deficits are a core feature of AVH in schizophrenia, and potentially represent an endophenotype for AVH. The authors will discuss a potential cognitive model which explains the relationship between AVH and pitch perception. There are clear translational elements to this research, and we suggest there might be some utility in using auditory training as an intervention to reduce the impact of AVH.

O2.8. TRAJECTORIES OF NEUROCOGNITIVE FUNCTIONING OVER TIME IN YOUTH AT CLINICAL HIGH RISK WHO DO AND DO NOT TRANSITION TO PSYCHOSIS

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Background: In spite of evidence for the premorbid and prodromal onset of cognitive deficits in schizophrenia and related psychotic disorders, there is some limited evidence to suggest that deficits may progress with psychosis onset. Cognitive remediation in youth at risk for psychosis is being touted as an opportunity not only to remediate deficits but to potentially prevent this progression. Yet trajectories of cognitive functioning over time remain poorly understood in youth at risk, including the degree to which age at assessment or illness onset, sociodemographic factors, or symptom progression influence these trajectories.

Methods: The North American Prodrome Longitudinal Study (NAPLS) -2 collected data on an extensive battery of neuropsychological (NP) tests at baseline, one year, two years, and post-conversion in a sample of clinical high risk (CHR) youth and healthy comparison (HC) subjects ages 12–35 (N= 960, 92% of the full sample) followed clinically for up to 2 years. NP data were available for 694 at CHR and 265 HC. Linear mixed effects analyses were used to test the effects of group, age, gender, age of onset, maternal education, and clinical outcome on cognitive trajectories.

Results: Those who transitioned to a psychotic disorder over the course of follow-up performed significantly below those who did not and well below healthy comparisons. Tasks reliant on attention, visual and auditory working memory, visuospatial and verbal memory, and processing speed best differentiated those who transitioned from those who did not at one year (Cohen's d from -0.33 to -0.54). Discrepancies from normal functioning on these tests were generally large (Cohen's d from -0.67 to -1.02) consistent with findings for first episode samples. Although clinical outcome was not associated with a significantly different trajectory over time on any cognitive domain, these are likely due to high rates of conversion in this sample within the first year. Predictors of different trajectories will be presented.

Discussion: These data from one of the largest CHR studies to date suggest that much of the neuropsychological dysfunction in major psychotic disorders is present early in the course of illness and prior to its full expression. However, trajectories are highly heterogeneous. More frequent assessment prior to and during the onset of illness are needed to fully understand the cognitive correlates of psychosis onset and the implications for early intervention.